

REMARKS

Entry of this amendment and reconsideration of this application, as amended, are respectfully requested.

The objections and rejections set forth in items 1 to 7 in the Office Action are not believed to apply to the presently pending claims.

Claims 1-6 and 9-10 were rejected under 35 U.S.C. §102(b) over Maki. Claims 7-8 and 11-13 were rejected under 35 U.S.C. §103(a) over Maki in view of McCartney and Sivetz. Applicants respectfully traverse each of these rejections.

The invention of new claim 14 is directed to:

" a method for treating roasted coffee beans by contacting said roasted coffee beans with flowing stream, comprising:

placing the roasted coffee beans in an apparatus which has a steam supply passage and a steam exhaust passage; and

flowing steam having a temperature of from 100 to 230°C from the steam supply passage to the steam exhaust passage, under conditions whereby the steam exiting the steam exhaust passage has an outlet pressure higher than atmospheric pressure."

In the method for treating roasted coffee beans according to new claim 14 of the present application, by performing the above-mentioned treatment on "roasted coffee beans", acidity component can be reduced while a loss of aroma component can be suppressed. At the same time, the extraction ratio of soluble solid coffee component can be improved.

In contrast, Maki (W095/20325) discloses a method for improving roasted coffee beans for the purpose of suppressing acidity of coffee beans, which includes performing a preliminary roasting of green coffee beans with superheated steam under increased pressure (first step of superheated steam treatment), and performing a final roasting with superheated steam under normal pressure or slightly increased pressure (second step of superheated steam treatment). According to the method of Maki, however, the temperature of the superheated steam is from 251 to 400°C, which is different from the steam temperature of from 100 to 230°C according to claim 14 of the presently claimed invention. When saturated steam heated above 230°C under increased pressure is brought into contact with roasted beans, carbonization rapidly advances and a burning smell is generated, which makes it difficult to obtain roasted beans with excellent aroma.

According to the method of Maki, therefore, if the second step of the superheated steam treatment is performed on "roasted coffee beans", acidity may be reduced but an unpleasant burning smell is generated as described above, and, as a result, roasted beans with rich aroma and flavor cannot be obtained.

On the other hand, if roasted coffee beans obtained in accordance with the method of Maki has excellent flavor, the coffee beans preliminarily roasted at the first step of the superheated steam treatment in the method of Maki is deemed to be completely different from the roasted coffee beans used in the treatment method according to new claim 14 of the presently claimed invention. In this case, the coffee beans used at the second step of the superheated steam treatment in the method of Maki is preliminarily and merely lightly roasted and is different from what is called "roasted beans" which have been roasted to the level at which the beans are capable of being used for drinking. In other words, in the method of Maki, the coffee beans are roasted to the drinkable level for the first time when the second step of the superheated steam treatment is completed. On the other hand, according to the method of new claim 14, a steam treatment is performed on roasted beans which have been roasted to the drinkable level. This is readily apparent

from the fact that in the Examples, roasted beans having an L value of from 18 (see Example 3) to 30 (see Example 10) are used. Accordingly, the presently claimed invention according to new claim 14 and the method of Maki are different in the roasted level of coffee beans to be treated.

Moreover, in the method of Maki as shown in Table 3 in the specification, pH after the preliminary roasting by the first step of the superheated steam treatment was 5.42 while pH after the second step was 5.47, and thus a small raise in pH (reduction of acidity component) was seen with the second step of the superheated steam treatment. On the other hand, according to the presently claimed invention, and as shown in Table 3 in the specification, pH increased from 5.32 to 5.58, thus the effect of reducing the acidity component is notable. Thus, the second step of the superheated steam treatment in the method of Maki is completely different from the invention according to claim 14 of the presently claimed invention with respect to the effect of reducing acidity component.

Furthermore, Maki simply discloses a method for roasting coffee beans, and fails to describe or suggest the effect of coffee beverage produced from the roasted beans. On the other hand, according to the presently claimed invention, and as shown in Fig. 5, by treating the roasted coffee beans with the method according to new claim 14, the problem of pH decrease during a long-term preservation of coffee beverage sealed in the container for distribution or storage purposes is solved.

In addition, as described above, when the steam has a high temperature, coffee beans are rapidly carbonized and burnt. Therefore, the temperature of steam should be carefully and accurately controlled, and in the case of Maki, the temperature control system is complicated. In addition, in order to heat the steam to a higher temperature, energy consumption becomes larger. On the other hand, the temperature control system used in claim 14 of the presently claimed invention is simpler than that used in the method of Maki and thus has advantages.

Thus, the 35 U.S.C. §102(b) rejection must be withdrawn.

With respect to the 35 U.S.C. §103(a) rejection, the deficiencies of Maki are discussed above and apply here as well.

McCartney discloses a method for producing powder coffee including the following steps of (i) to (iv):

- (i) collecting aroma component from roasted and ground coffee beans by steam distillation
- (ii) removing acidity component by a vacuum treatment on the coffee beans with less aroma after steam distillation (residue)
- (iii) obtaining an extract from the coffee beans undergone the vacuum treatment; and
- (iv) mixing the extract obtained in the step (iii) and the aroma component collected in the step (i), and drying to obtain dry powder.

In other words, the method of McCartney is directed to a technique of removing the acidity component from the coffee component, in order to utilize the collected aroma component, which is completely different from the presently claimed invention in terms of the technical problem and technical idea.

Moreover, according to the method of McCartney, the steam distillation is performed for collecting the aroma component from the coffee beans, and the vacuum treatment is performed for removing the acidity component, which are different from performing the steam treatment on the roasted coffee beans for reducing acidity component. Therefore, the method of the present invention is completely different from

the method of McCartney.

In addition, even though McCartney discloses the steaming temperature range of from 180 to 230°F (82 to 110°C), the disclosed temperature is used for collecting the aroma component from the coffee beans, and reason for performing the steam treatment is different from that of the invention according to new claim 14 of the presently claimed invention. Therefore, the disclosure of claim 14 of the present application of "steam having a temperature of from 100 to 230°C" for the purpose of reducing acidity component, cannot be deemed to be obvious.

It should be noted that line 47 in the first column of McCartney mentions that acid is released by steam operation, but McCartney does not specifically state that acidity component of roasted coffee beans is intentionally reduced using the steam treatment.

Sivetz discloses a general technique for a roasting treatment of coffee beans, and fails to teach or suggest the steam treatment of roasted coffee beans.

Neither of McCartney or Sivetz overcomes the deficiencies of Maki.

Therefore, the invention according to claim 14 is completely different from the above-mentioned prior art references in features and effects.

Moreover, even when the above-described prior art references are combined, the invention according to claim 14 cannot be obvious for those skilled in the art.

The invention according to new claim 19 of the present application is directed to steam treated, roasted coffee beans produced by the method of claim 14, having an extraction ratio of at least 35%, and a total amount of formic acid and acetic acid of less than 0.25% of the weight of said roasted coffee beans.

On the other hand, none of the cited references teach or suggest roasted coffee beans having an extraction ratio of at least 35%, and a total amount of formic acid and acetic acid of less than 0.25% of the weight of said roasted coffee beans.

In addition, as described above, the invention according to claim 14 of the present application differs from any of the method of the prior art references, and is not obvious from the prior art references. Therefore, the steam treated roasted coffee beans produced by the method according to claim 14 of the present application differs from the coffee beans produced by any of the methods of the prior art references, and are not obvious from the cited references.

Accordingly, the invention according to claim 19 is also patentable.

The remaining claims depend from the aforementioned claims, and, therefore, are also believed to be patentable.

In view of the foregoing, allowance is respectfully requested.

Any necessary fees may be charged to Deposit Account No. 50-0624, under Order No. KIT 405-US from which the undersigned is authorized to draw.

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Respectfully submitted,

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